



Nevada Department of Health and Human Services
Nevada State Health Division (NSHD)
HAI Prevention Conference, 2009

Healthcare-Associated Infections (HAIs) are a Public Health Issue: The Infection Preventionist as the Keystone for Prevention

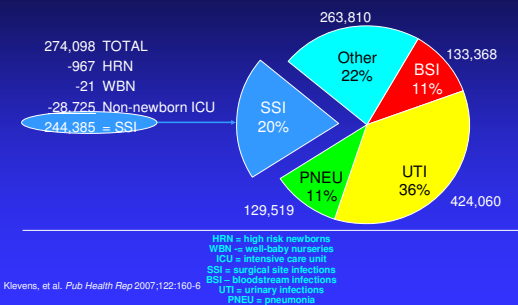
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Today's Agenda

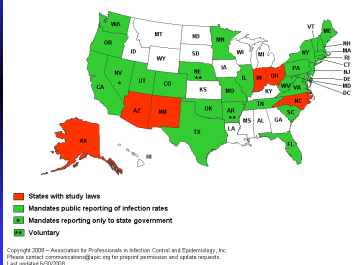
- Identify at least one external factor influencing infection prevention & control programs in U.S. hospitals
- List at least one factor involved in diffusion of innovation involving application of infection prevention evidence to direct patient care.
- Identify components of infection prevention bundles for central line-associated bloodstream infection (CLABSI), ventilator-associated pneumonia (VAP), catheter-associated UTI (CAUTI), & surgical site infection (SSI)
- Describe at least one example of incorporating a collaborative into an annual risk assessment and infection prevention & control plan.

Snapshot of Relative Distribution of Health Care-Associated HAIs in U.S. hospitals, 2002



Consumer Driven Disclosure Requirements

Healthcare-Associated Reporting Laws and Regulations



New Nevada-Specific Legislation

Senate Bill No. 319–Senators Breedon, Parks,
Carlton and Woodhouse

Joint Sponsors: Assemblymen Segerblom, Leslie and Smith

Senate Bill No. 325–Senator Cegavske

CHAPTER.....

- Tracking and reporting of near-miss events by NSHD
- Require certain health facilities to participate in CDC's National Healthcare Safety Network (NHSN)
- "...The Health Division shall by regulation prescribe the information which must be provided by a medical facility, including, without limitation, information relating to infections and procedures."
- Sections 1-22; 24 eff. 10/01/2009. Sect. 23 eff. 7/01/2009
- "...authorizing hospitals to establish a program concerning methicillin-resistant Staphylococcus aureus (MRSA); encouraging the Nevada Hospital Association to develop a method to collect information concerning such infections; and providing other matters properly relating thereto."
- Effective 10/01/2009

HHS Action Plan To Prevent HAIs 01/06/2009

Five Point Strategy:

- HHS Steering Committee
- Establish Priorities for HICPAC Recommendations
- Identify & explore options for regulatory oversight of recommended practices and provide critical compliance assistance to select hospitals.
- Establish greater consistency and compatibility of HAI data through developing standardized definitions and measures for HAIs
- Build on the principles of transparency and consumer choice to create incentives and motivate healthcare organizations and providers to provide better, more efficient care.

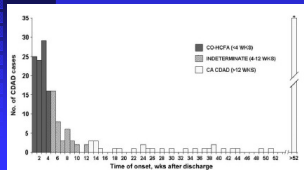
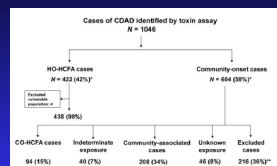
Available at: <http://www.hhs.gov/ophs/initiatives/hai/infection.html>

Centers for Medicare & Medicaid Services (CMS) & Value-Based Purchasing

- No payment for certain Hospital acquired conditions:
 - Serious preventable events: Object left in during surgery; air embolism; Delivering ABO-incompatible blood or blood products
 - catheter-associated urinary tract infections
 - pressure ulcers (stages III & IV)
 - Vascular catheter-associated infection
 - SSI: mediastinitis after CABG; certain orthopedic procedures, bariatric surgery
 - Patient falls
 - Manifestations of poor glycemic control
 - DVT/PE after total knee or hip replacement

Building the Case for HAIs as Public Health Issue

Clostridium difficile infection as an example



Kutty PK, et al. **Assessment of *Clostridium difficile*-Associated Disease Surveillance Definitions, North Carolina, 2005.** Infect Control Hosp Epidemiol 2007; 29:197-202.

Building the Case for HAIs as Public Health Issue, cont.

...we estimate that 94,360 invasive MRSA infections occurred in the U.S. in 2005; these infections were associated with death in

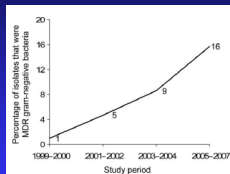
MRSA: What You Should Know

Table 2. Observed Incidence Rates of Invasive Methicillin-Resistant *Staphylococcus aureus* (MRSA) by Active Bacterial Core Surveillance Site and Epidemiologic Classification, United States, 2005*

Surveillance Site No. (Location) ^b	No. of Cases	Incidence per 100,000		Total
		Community-Associated	Hospital-Associated	
1 (Connecticut)	952	2.7	15.6	27.1
2 (Atlanta, GA, metropolitan area)	1165	5.1	16.7	30.3
3 (San Francisco, CA, Bay Area)	906	4.5	15.9	29.2
4 (Denver, CO, metropolitan area)	490	2.8	12.3	6.0
5 (Portland, OR, metropolitan area)	305	4.7	11.4	3.6
6 (Monroe County, NY)	307	2.7	22.2	16.8
7 (Baltimore City, MD)	742	29.7	62.9	19.7
8 (Davidson County, TN)	305	6.8	30.4	13.9
9 (Ramsey County, MN)	95	1.6	11.5	6.1

*Epidemiologic classification of disease consisted of health care-associated (either hospital-onset cases with a culture collected >48 h after hospital admission or community-onset cases with health care risk factors but a culture collected <48 h after hospital admission) and community-associated cases (no health care risk factors).
^bSite numbers were assigned in descending order of population size.

Building the Case for HAIs as Public Health Issue, cont. [Lest you think this only involves gram-positive microbes]



16-fold increase in BSI due to MDR gram-negative bacteria at hospital admission between 1999 - 2007

Pop-Vicas A, et al. ICHE 2009;30:

Guidance for Control of Infections with Carbapenem-Resistant or Carbapenemase-Producing Enterobacteriaceae in Acute Care Facilities

MMWR

March 20, 2009 / Vol. 58 / No. 10

Other Federal Initiatives

- American Recovery and Reinvestment Act of 2009, Public Law 111-5 (ARRA)
- Includes \$50 million authorized to support states in the prevention and reduction of healthcare associated infections (HAI)



National Patient Safety Goals (NPSG), Hospital, 2009

- **NPSG.07.03.01:** Implement evidence-based practices to prevent health care-associated infections due to multidrug-resistant organisms in acute care hospitals: incl. but not limited to MRSA, CDI, VRE, MDR-Gram negatives
- **NPSG.07.04.01:** Implement best practices or evidence-based guidelines to prevent central line-associated bloodstream infections
- **NPSG.07.05.01** Implement best practices for preventing surgical site infections.
- **NPSG.13.01.01** Identify the ways in which the [patient] and his or her family can report concerns about safety and encourage them to do so

Prevention Compendium & Guides

- SHEA/IDSA Compendium, Oct. 08
ICHE:
 - ◆ CLABSI
 - ◆ VAP
 - ◆ CA-UTI
 - ◆ SSI
 - ◆ MRSA
 - ◆ C. difficile infection (CDI)
- APIC, 2007-09:
 - ◆ MRSA
 - ◆ CLABSI
 - ◆ CAUTI
 - ◆ CDI
 - ◆ Mediastinitis SSI after Cardiac Surgery
 - ◆ MRSA in LTCF

Diffusion of Innovation

(Everett Rogers*, PhD)

- Most innovations diffuse at a disappointingly slow rate
- 1497 - Vasco de Gama's voyage around the Cape of Good Hope: 100/160 members of the crew died of scurvy
- 1601 - James Lancaster (English captain): quasi-experimental study of 4 ships to India.
 - ◆ Sailors on 1 ship received lemon juice (3 tsp/d); sailors in other 3 ships got nothing
 - ◆ "Lemon" ship = all healthy; control ships = 110/278 died

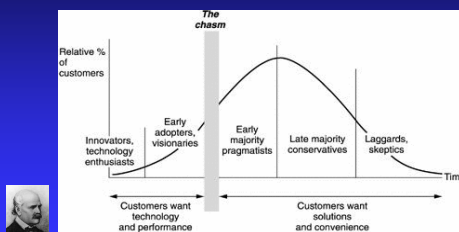
Diffusion of Innovation

(Everett Rogers, PhD, 1962)

- British Navy should adopt citrus juice for scurvy prevention given these findings, correct?
- 1747 - James Lind (British Navy physician): confirmed Lancaster's findings from 150 years earlier
- 1795 - British Navy adopted this innovation and scurvy eradicated (48 years after Lind's study)
- 1865 (70 years later!) - this innovation adopted in the British merchant marine

Model of Diffusion of Innovation; Rogers,

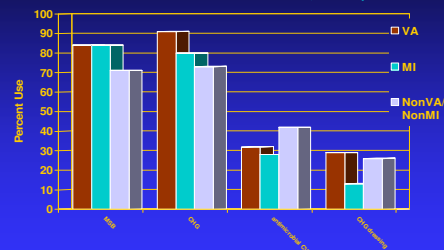
E.M. (1983). *Diffusion of Innovations*, Free Press, New York



1847, Dr. Semmelweis ----- ABHR & CDC HH Guideline, 2002?

Diffusion of Infection Prevention Practices;

Krein S, et al Mayo Clin Proc 2007;82:672-8



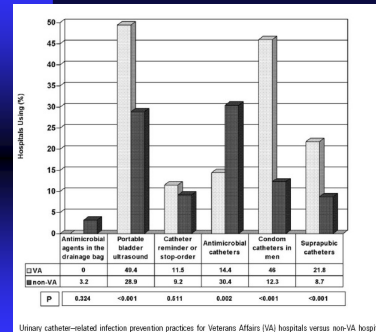
Factors:
safety
Culture;
ICP-CIC
&
PI coll.
= more likely to use BSI prevent. practices

Max Barrier Prec.\Chlorhexidine tincture \ Antimic. CL \CHG dressing

Is BSI Prevention Evidence Making it to the Bedside?

- Survey of ICUs in 10 academic medical centers across the U.S. –
 - ◆ In 80% of the ICUs 5 separate groups of physicians inserted 24-50% of CLs
 - ◆ Written policy for CL insertion (80%)
 - ◆ Policy Requires maximal sterile barriers at insertion (28%)
 - ◆ Formal education program for personnel (52%)
 - ◆ Policy stated hand hygiene prior to insertion (80%)
 - ◆ Policy stated hand hygiene prior to accessing CL (36%)

Warren DK, et al. *Infect Control Hosp Epidemiol* 2006;27:3-7



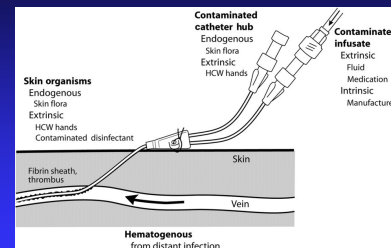
Diffusion of Innovation:

- ◆ CA-UTI Prevention
- ◆ Saint S, et al. *Clin Infect Dis* 2008; 46:243–50

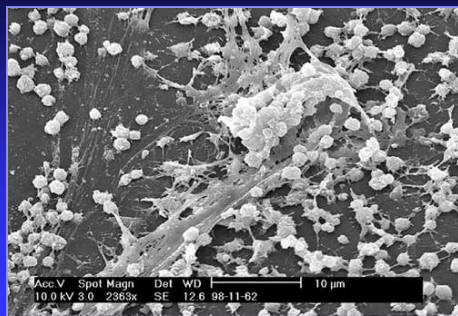
On Resisters and Organizational Constipators & HAI Prevention

- Qualitative study: 86 personnel [MDs, RNs, CEOs, IPs, etc] at 14 hospitals
 - ◆ Active resistance to evidence-based practice was pervasive
 - ◆ “PPE” against this = benchmarking HAI data, champions, participation in PI collaboratives
 - ◆ Organizational constipators:
 - ◆ mid- to high level executive management
 - ◆ Strategies for an “enematic” approach:
 - Identification
 - Early involvement in planned PI project
 - ◆ Saint S, et al. *Jt Comm J Qual Patient Saf* 2009;35:5:239-46

Pathogenesis of infection for percutaneous intravascular device; *Clin Infect Dis* 2002;34:1232-42



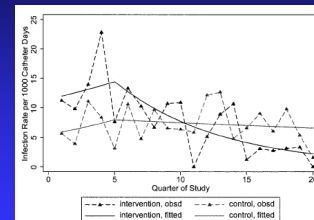
A closer look at CLABSI: Home sweet Biofilm



Donlon RM,
Carr J.
CDC
PHIL #
7488

Preventing CLABSI: System-level success

- Prospective cohort study, SICU & concurrent control ICU
- Bundled CLABSI Prevention Interventions in SICU
- CLABSI rate decreased from 11.3 to 0.0/1,000 CVC days in SICU; control ICU 5.7 to 1.6
- Estimated 42 CVC-BSIs avoided; savings of > \$1.9 million



Berenholtz SM. *Crit Care Med* 2004;32:2014-20.

KEYSTONE-ICU PROJECT

- Statewide initiative-70 Hospitals, 127 ICUs; launched Feb. 2004
- In Collaboration with Johns Hopkins Quality and Research Institute
- Reduce errors and improve patient outcomes in ICUs
- Combination of evidence based medicine and quality improvement
- 5 interventions implemented over a 2 year period
 - Patient Safety Program and incident reporting
 - Eliminate Blood Stream Infections (BSIs)**
 - Improve care of the ventilated patient
 - Implement Daily Goals Sheet
 - Implement and evaluate an intervention to reduce ICU mortality

AJIC major articles

National Healthcare Safety Network (NHSN) Report, data summary for 2006 through 2007, issued November 2008

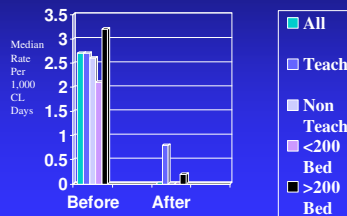
Jonathan R. Edwards, MStat, Kelly D. Peterson, BBA, Mary L. Andrus, BA, RN, CIC, Margaret A. Dudeck, MPH, David A. Pullack, MD, Teresa C. Horan, MPH, and the National Healthcare Safety Network Facilities, Atlanta, Georgia

Am J Infect Control 2008;36:609-26.

Keystone ICU Project & CLABSI Prevention: The Results

K-ICU CLABSI Prevention Project

- 66% reduction in Central Line Bloodstream Infections (CLBSI)
- Interventions:
 - Hand hygiene
 - Max. barrier prec. during insertion
 - CHG antiseptic on insertion site
 - Avoid femoral CLs
 - Remove CL when not needed



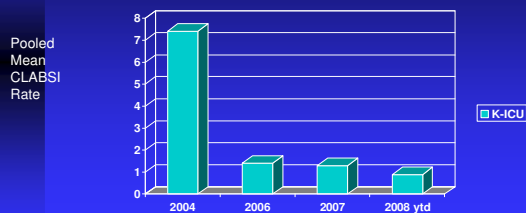
Peterson K, et al. NEJM 2008;359:1223-32

Process Indicators: CLABSI ALL UNITS, SJMHS

	May-June '04	July-August '04	Sept. '04	Nov-Dec '04	April-May '05
Lines inserted	31	58	31	61	66
Follow correct procedure	65% (20/31)	86% (50/58)	90% (28/31)	87% (53/61)	86% (57/66)
Required correction	52% (16/31)	45% (26/58)	35% (11/31)	28% (17/61)	27% (18/66)
Femoral lines inserted	16% (5)	19% (11)	6% (2/31)	8% (5/61)	12% (8/66)
Average insertion time	41.5 minutes	40 minutes	34 minutes	44 minutes	35 minutes

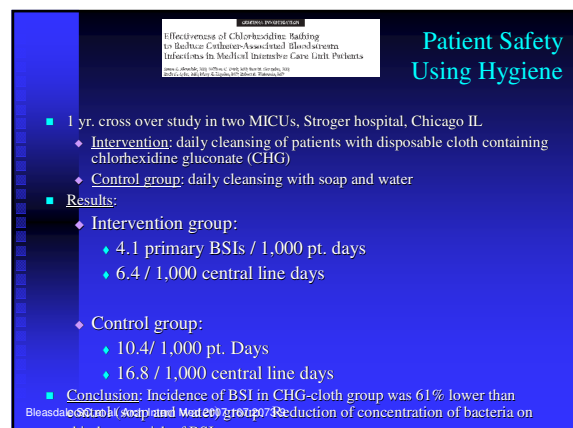
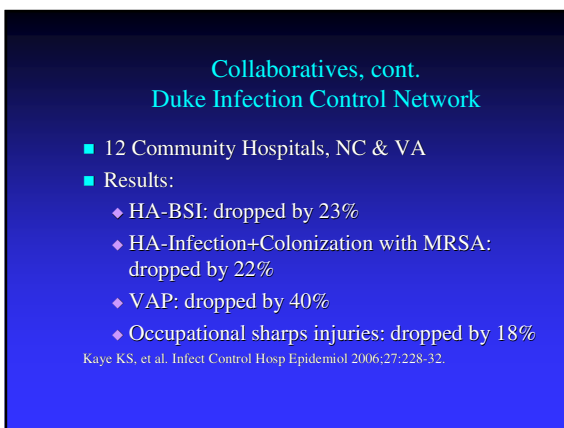
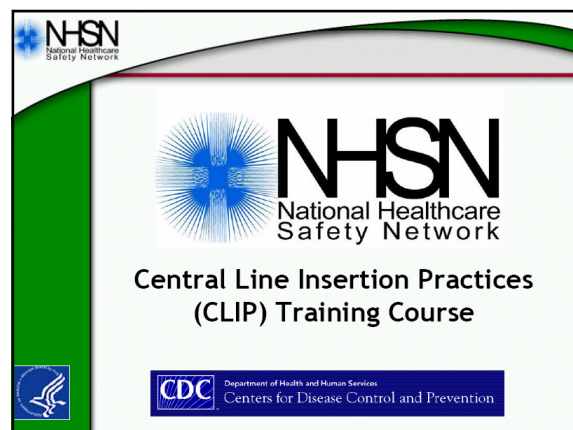
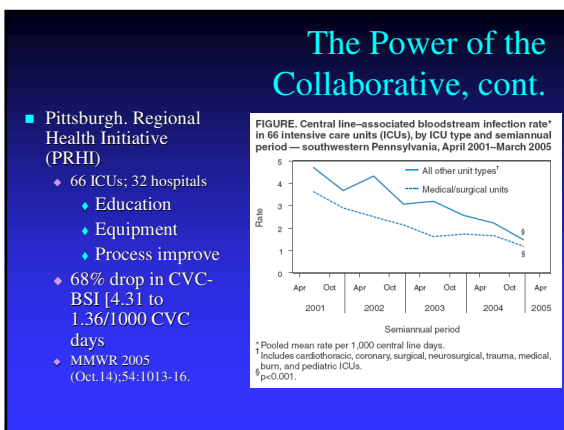
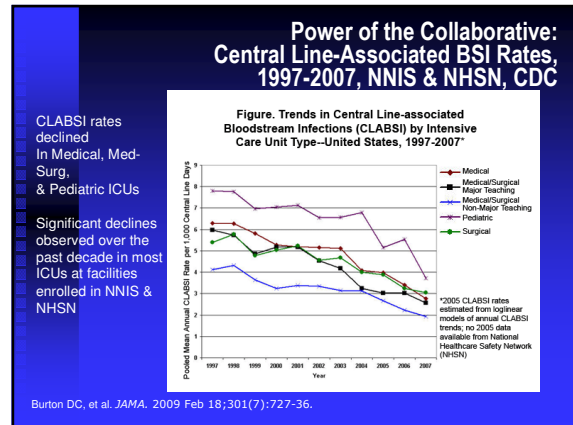
Sustaining Prevention: Can it be done?

MI Keystone ICU: Long Term Trends in CLABSI



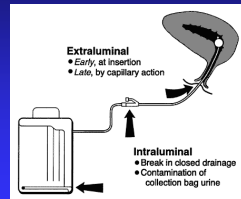
Use of Central Lines Outside the ICU Setting

- Climo M, et al. 2003:
 - 1 Day Point Prevalence Survey Six Medical Centers:
 - 2,459 patients; 29% with central lines (CL)
 - Of all CLs in use 66% were in non-ICU
- Vonberg RP, et al. 2006:
 - 42 hospitals, July 02- June 04
 - Mean CLABSI rate = 4.3/1,000 CL days among non-ICU population
- Weber DJ, et al. 2007:
 - 700 bed hospital, 2004-05
 - 320/407 (78.6%) of cases of CLABSI occurred outside the ICU
- Marschall J, et al. 2008:
 - 4 Gen. Med. Units, 1,250 bed teaching hospital
 - Overall CLABSI rate = 5.7



Pathogenesis of CA-UTI

- Source: colonic or perineal flora or hands of personnel
- Microbes enter the bladder via extraluminal (around the external surface) (proportion = 2/3) or intraluminal (inside the catheter) (1/3)
- Daily risk of bacteriuria with catheterization is 3% to 10%; by day 30 = 100%



♦ Maki DG EID 2001

Facts & Figures on CAUTI

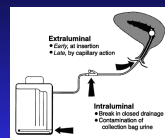
- CAUTI has been associated with increased morbidity, mortality (attributable mortality = 2.3%), hospital cost, and length of stay.
- 15% - 25% of hospitalized patients may receive short-term indwelling urinary catheters.
- Reported rates of CAUTI = 3.1-7.5 infections per 1000 catheter-days [National Healthcare Safety Network, CDC]
- 17% to 69% of CAUTI may be preventable with recommended infection prevention measures
 - ♦ Up to 380,000 infections and 9000 deaths related to CAUTI per year could be prevented

Prevention of Catheter-Associated Urinary Catheter Infections: Process vs Outcome

- Keystone Hospital Associated Infection Prevention Module:

♦ The Bladder Bundle

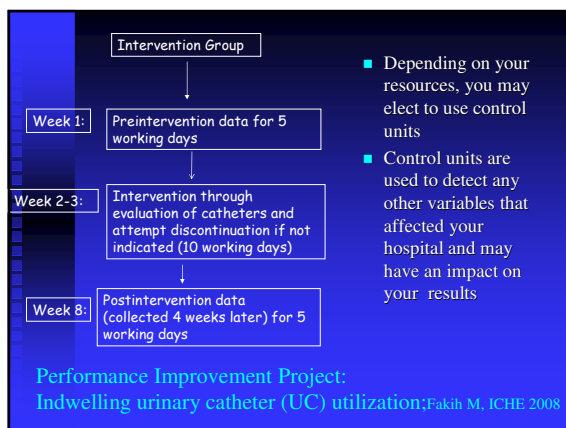
- ♦ Focus on appropriate use of urinary catheters
- ♦ Three phases: preintervention, intervention & postintervention
- ♦ Goal: decrease frequency of unnecessary catheter use



See: Fakih MG, et al. Effect of Nurse-Led Multidisciplinary Rounds on Reducing the Unnecessary Use of Urinary Catheterization in Hospitalized Patients. ICHE Sept;2008; 29:815- 81

Systems Approach: Reducing Indwelling Urinary Catheterization

- Seattle VA: *Computerized* catheter removal reminder after 72° of catheter use; catheterization ↓ by 3 days (Cornia et al. Am J Med 2003)
- ICU in Taiwan: *Nurse-based* reminder system reduced duration of catheterization (7 days vs. 4.6 days; P<0.001) and UTI by ~30% (P=.009) (Huang et al. ICHE 2004)
- U of M: *Written* reminder put on chart after 48° of catheterization; catheterization ↓ by about 1 day (Saint et al. Jt Comm J Qual Safety 2005)



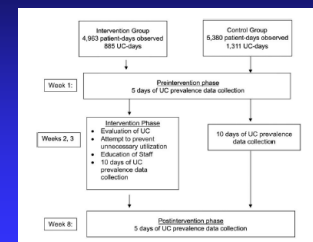
- Depending on your resources, you may elect to use control units
- Control units are used to detect any other variables that affected your hospital and may have an impact on your results

Nurse-Led Multidisciplinary Rounds on Reducing Unnecessary Catheter Utilization

Proportion of urinary catheters indicated = 54.8%

Nurse-led intervention was associated with discontinuation of 45% of those catheters that did not meet Indications.

Fakih M, et al. Infect Control Hosp Epidemiol 2008;29:815-9



Preventing Ventilator-Associated Pneumonia (VAP)

■ VENTILATOR BUNDLE PERFORMANCE IMPROVEMENT

- ◆ **BUNDLE:** Group of interventions related to a disease state that when instituted together give better outcomes than when done individually.

■ VENTILATOR BUNDLE MEASURES:

- ◆ Head of bed (HOB) elevations ≥ 30 degrees
- ◆ Appropriate deep venous thrombosis (DVT) prophylaxis
- ◆ Appropriate peptic ulcer disease (PUD) prophylaxis
- ◆ Appropriate sedation
- ◆ Assessment of readiness to extubate
- ◆ Glycemic control

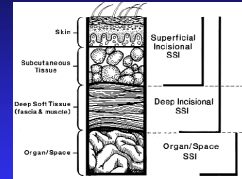
■ MEASUREMENT:

- ◆ The percentage of patient days where all 5 ventilator measures are performed.
- ◆ The percentage of each intervention completed on each day the patient is on a ventilator.

How about Collaboratives & Prevention of Surgical Site Infection?

- 8 hospitals/8 cities in 8 countries; N = 7,688 patients
- 19 item surgical safety checklist – Before/After trial
- Results:

- ◆ Mortality decreased from 1.8% before to 0.8% after implementation of checklist
- ◆ Morbidity: inpatient complications went from 11% before to 7% after



Haynes AB, et al. N Engl J Med 2009;360:491-9.

WHO Surgical Checklist

Table 1. Elements of the Surgical Safety Checklist.*

Sign in
Before induction of anesthesia, members of the team (at least the nurse and an anesthesia professional) orally confirm that:
The patient has verified his or her identity, the surgical site and procedure, and consent
The surgical site is marked or site marking is not applicable
The pulse oximeter is on the patient and functioning
All members of the team are aware of whether the patient has a known allergy
The patient's airway and risk of aspiration have been evaluated and appropriate equipment and assistance are available
If there is a risk of blood loss of at least 500 ml (or 7 ml/kg of body weight, in children), appropriate access and fluids are available
Time out
Before skin incision, the entire team (nurses, surgeons, anesthesia professionals, and any others participating in the care of the patient) orally:
Confirms that all team members have been introduced by name and role
Confirms the patient's identity, surgical site, and procedure
Reviews the anticipated critical events
Surgeon reviews critical and unexpected steps, operative duration, and anticipated blood loss
Anesthesia staff review concerns specific to the patient
Nursing staff review confirmation of sterility, equipment availability, and other concerns
Confirms that prophylactic antibiotics have been administered ≤ 60 min before incision is made or that antibiotics are not indicated
Confirms that all essential imaging results for the correct patient are displayed in the operating room
Sign out
Before the patient leaves the operating room:
Nurse reviews items aloud with the team
Name of the procedure as recorded
That the needle, sponge, and instrument counts are complete (or not applicable)
That the specimen (if any) is correctly labeled, including with the patient's name
Whether there are any issues with equipment to be addressed
The surgeon, nurse, and anesthesia professional review aloud the key concerns for the recovery and care of the patient

Yes, it is all about your facility-specific risk assessment



- **IC.01.03.01:** ...identifies risks for acquiring and transmitting infections based on the following:
 - ◆ geographic location, community, and population served;
 - ◆ care, treatment, and services;
 - ◆ analysis of surveillance activities & other infection control data
- **IC.01.04.01** Based on the identified risks, the [organization] sets goals to minimize the possibility of transmitting infections.
- **IC.01.05.01** The [organization] has an infection prevention and control

Risk Assessment & Plan Development: A quantitative approach

- Prepare a profile of distribution, pathogens causing HAIs that are included in your facility's surveillance program
- Compare distribution of HAIs and associated pathogens at your affiliate to a nationwide points of reference:
 - ◆ Hidron AI, et al. *Infect Control Hosp Epidemiol* 2008; 29:996-1011
 - ◆ Edwards JR, et al. *Am J Infect Control* 2008;36:609-26
- Incorporate findings into your risk assessment

Example of Nationwide Comparative Database

AIC major articles

National Healthcare Safety Network (NHSN) Report, data summary for 2006 through 2007, issued November 2008

Jonathan R. Edwards, MSc, Kelly D. Peterson, RMA, Mary L. Arndus, BA, RN, CIC, Margaret A. Dudeck, MPH, Daniel A. Fitts, MD, Theresa C. Horan, MPH, and the National Healthcare Safety Network Building Atlanta, Georgia

Table 3. Pooled mean and key percentiles of the distribution of central line-associated SSI rates and central line utilization rates, by type of location, CA module, 2006 through 2007

Type of location	Central line-associated SSI rates*			Percentiles		
	No. of locations	No. of CLABSI	Central line days	Pooled rates	10%	90%
Critical care units	22	219	42,402	5.6	0.0	13.8
ICU	12	93	30,091	3.1	0.0	13.2
General	17	397	25,134	1.6	0.0	12.2
Surgical ambulatory	18	677	64,697	1.0	0.0	1.9
Medical	104	91	34,204	0.3	0.0	1.5
Psychological major	104	91	34,204	0.3	0.0	1.5

Table 22. SSI rates* by operative procedure and risk index category, PA module, 2006 through 2007

Procedure code	Operative procedure description	Duration cat. point (min)	Risk index category	No. of procedures	No. of SSI	Pooled mean
AAA	Abdominal aortic aneurysm repair	225	0.1	881	16	1.8%
AAA	Abdominal aortic aneurysm repair	225	2.3	288	15	5.2%
APRY	Aortic surgery	81	0.1	2491	46	1.4%
APRY	Aortic surgery	81	2.3	372	13	3.4%

Nationwide comparative database, cont.: Pathogen profile

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY OCTOBER 2008, VOL. 30, NO. 10
NHSN ANNUAL UPDATE

Antimicrobial-Resistant Pathogens Associated With Healthcare-Associated Infections: Annual Summary of Data Reported to the National Healthcare Safety Network at the Centers for Disease Control and Prevention, 2006–2007

TABLE 4. Distribution and Rank Order of Selected Pathogens Associated With Cases of Healthcare-Associated Infection (HAI) Reported to the National Healthcare Safety Network, January 2006–October 2007, by Type of HAI

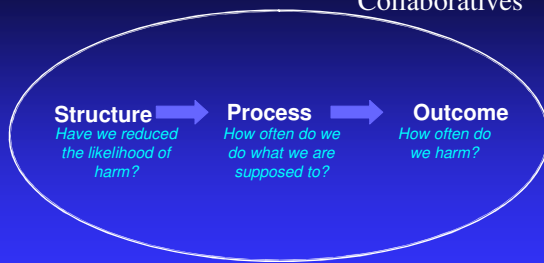
Pathogen	Overall*		CLABSI		CAUTI		VAP		SSI	
	No. (%) of pathogenic isolates	Rank	No. (%) of pathogenic isolates	Rank	No. (%) of pathogenic isolates	Rank	No. (%) of pathogenic isolates	Rank	No. (%) of pathogenic isolates	Rank
CoNS	5,178 (15.3)	1	3,900 (34.1)	1	234 (2.5)	7	79 (1.5)	9	965 (13.7)	2
<i>Staphylococcus aureus</i>	4,913 (14.5)	2	1,127 (9.9)	4	208 (2.2)	8	1,456 (24.4)	1	2,100 (30.0)	1
<i>Enterococcus</i> species		3		2		3		10		3
<i>E. faecalis</i>	1,177 (3.5)		627 (5.5)		335 (3.6)		21 (0.4)		194 (2.8)	
<i>E. faecium</i>	1,888 (5.6)		942 (8.2)		542 (6.0)		38 (0.6)		345 (4.9)	
NOS	1,628 (5.0)		265 (2.3)		496 (5.3)		18 (0.3)		249 (3.5)	
Candida species		4		3		2		7		8
<i>C. albicans</i>	2,296 (6.8)		673 (5.9)		1,361 (14.5)		140 (2.4)		115 (1.6)	
Other <i>Candida</i> spp.										
or NOS	1,333 (3.9)		669 (5.9)		613 (6.5)		20 (0.3)		30 (0.4)	
<i>Escherichia coli</i>	3,264 (9.6)	5	319 (2.7)	8	2,089 (23.4)	1	271 (4.6)	6	673 (9.6)	4

Example of Annual Infection Prevention & Control Plan

Site of Infection / focus	Goal(s)	Implementation Strategies	Measurement
Surgical Site Infections (SSI) prevention	SSI rate at or below NHSN Pooled mean for applicable	No razors Preop Abx timing Normothermia...	Compare procedure specific SSI rates to internal & external comparable data
Central Line-Associated Bloodstream Infections (CLABSI)	procedure groups, CLABSI rate at or below NHSN 25th percentile for MICU, SICU	CLABSI prevention bundle CHG cleansing...	Analyze & Report monthly trend analysis of CLABSIs
C. Difficile infection	Rate of HA-CDI = 8.0/10,000 patient days	Enhanced environmental disinfection Real time feedback	Incidence of HA-CDI by inpatient unit

Evaluate at end of fiscal year & revise plan.

Conceptual Model for Collaboratives



Adapted from: Donabedian A. Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly* 1966;44:166–206.

Components of the Keystone Collaborative for Patient Safety

Component	Organizational Leadership	Unit-based Team Leaders	Direct Care Personnel
Engage	How do I create an org. safe to patients and personnel?	How do we create a safe unit?	Can change to improve safety can happen here?
Educate	Business case? Board & MD partners?	What is the evidence? What tools do we need?	Will outcomes improve?
Execute	Does the unit-based team have adequate resources?	Do personnel know the plan?	How can I share what I know to improve care?
Evaluate	Is patient safety improved? Is the work climate better?	Is there a system for data collection, analysis & reporting?	Is our unit providing safer care? How do I know?

Summary Points

- There are several external factors related to HAIs, most of which are aligned, impacting providers in the U.S.
- There is compelling evidence of the efficacy of infection prevention collaboratives.
- Despite efficacy of collaboratives, application of scientific evidence at the bedside is challenging and incomplete.
- Use available prevention strategies to enhance safety and quality of care for patients at your affiliate.
- JOIN NHSN IF YOU HAVEN'T DONE SO!
- Incorporate facility-specific risk assessment into the annual IPC plan – engage clinical care team in its development and evaluation